Locating Datasets

Exercise A	Finding Coastal Data
Exercise B	Using Layer Files to Display and Access Data
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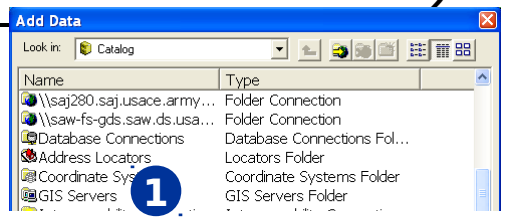
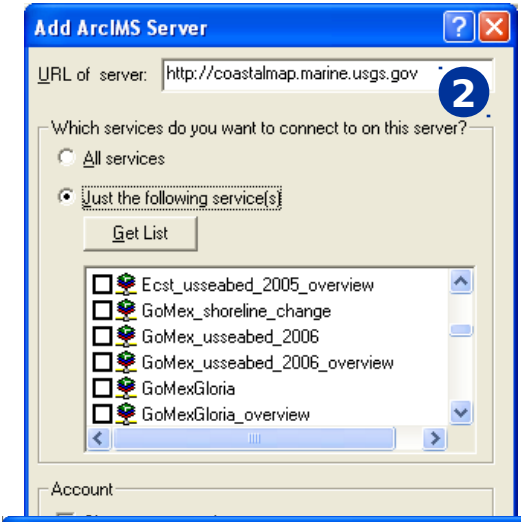
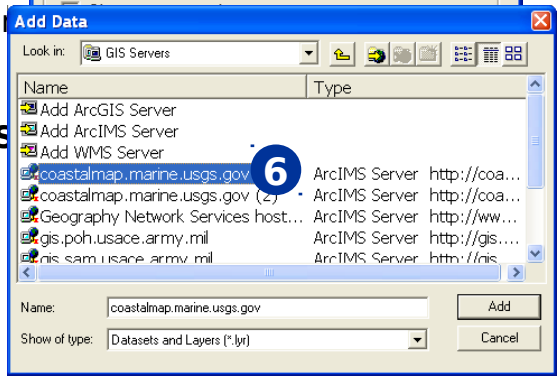
Exercise A: Finding Coastal Data

ArcIMS/Web Mapping (WMS) Services

To access services provided by an ArcGIS, ArcIMS, or Open Geospatial Consortium, Inc (OGC) Web Mapping Service (WMS) server, you make a connection to it in the ArcCatalog GIS Servers folder. To connect to either a server over the Internet, you must provide the Universal Resource Locator (URL) that uniquely identifies the server on the Internet. For ArcGIS Servers, you can also connect over your local network; to connect, you must provide a local area network (LAN) address, such as the name of the computer.







Connecting to an ArcIMS Server

1. Click on the Add Data tool in ArcMap. Browse to the option, double-click on **GIS Servers**, then double-click to select **Add ArcIMS Server**.
2. In the dialog box that appears, type in the URL of the Internet Server to which you want to connect.
   - ☐ Enter **http://coastalmap.marine.usgs.gov**
3. To access particular services on this server, click **Get List**. A list of all services that are available on the server appears.
   - ☐ For this example, Click the "All Services" option to add a connection to all of USGS' coastal related map services.
4. Click OK.
5. To add this data into the view, using the Add Data button, browse to **GIS Servers**
6. Double-click to select **http://coastalmap.marine.usgs.gov.**
7. Select **GoMex_shoreline_change** and click **Add**. This will automatically load the data served on the internet into your mapping display. If prompted, select "OK to All" to load data into your data frame.

Exercise A: Finding Coastal Data

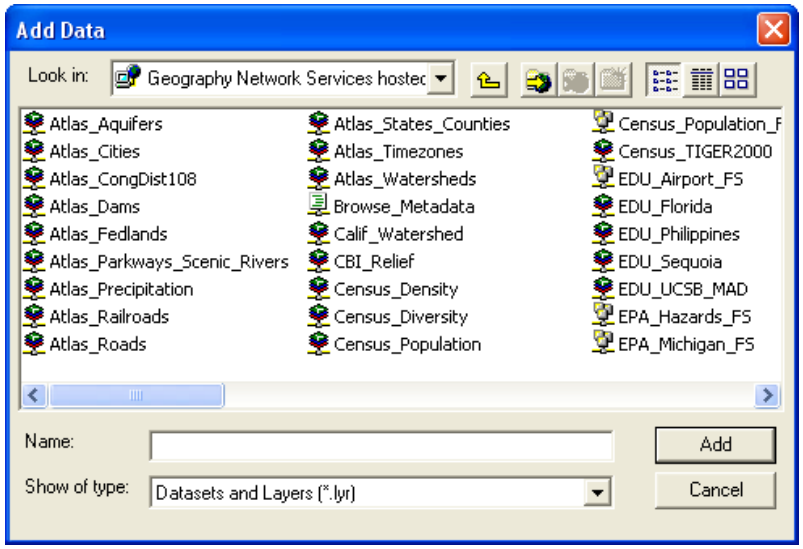
About adding data from the Internet

The Internet is a vast resource for geographic data. The Add Data from GIS Servers option in ArcMap allows you to go directly to an existing resource published through the web.

An example of a widely used source is the Geography Network (www.geographynetwork.com). The Geography Network is a global community of data providers committed to making geographic content available to the public. Published from sites around the world, it gives you immediate access to the latest maps, data, and related services over the Internet. Use the Geography Network to search for and explore maps and other geographic content. When you find what you want, you can add it directly to your map in ArcMap.

Adding Internet data from the Geography Network

1. Click the File menu, point to **Add Data**
2. Select **GIS Servers** and double-click on **Geography Network Services hosted by ESRI.**
3. An available list of data services are provided.
4. Double-click on the **USGS_NLCD** selected, ArcMap will connect to the source and pull down a real-time link to the data in your ArcMap session.



For more information on the content of these web services, visit http://www.geographynetwork.com

Exercise A: Finding Coastal Data

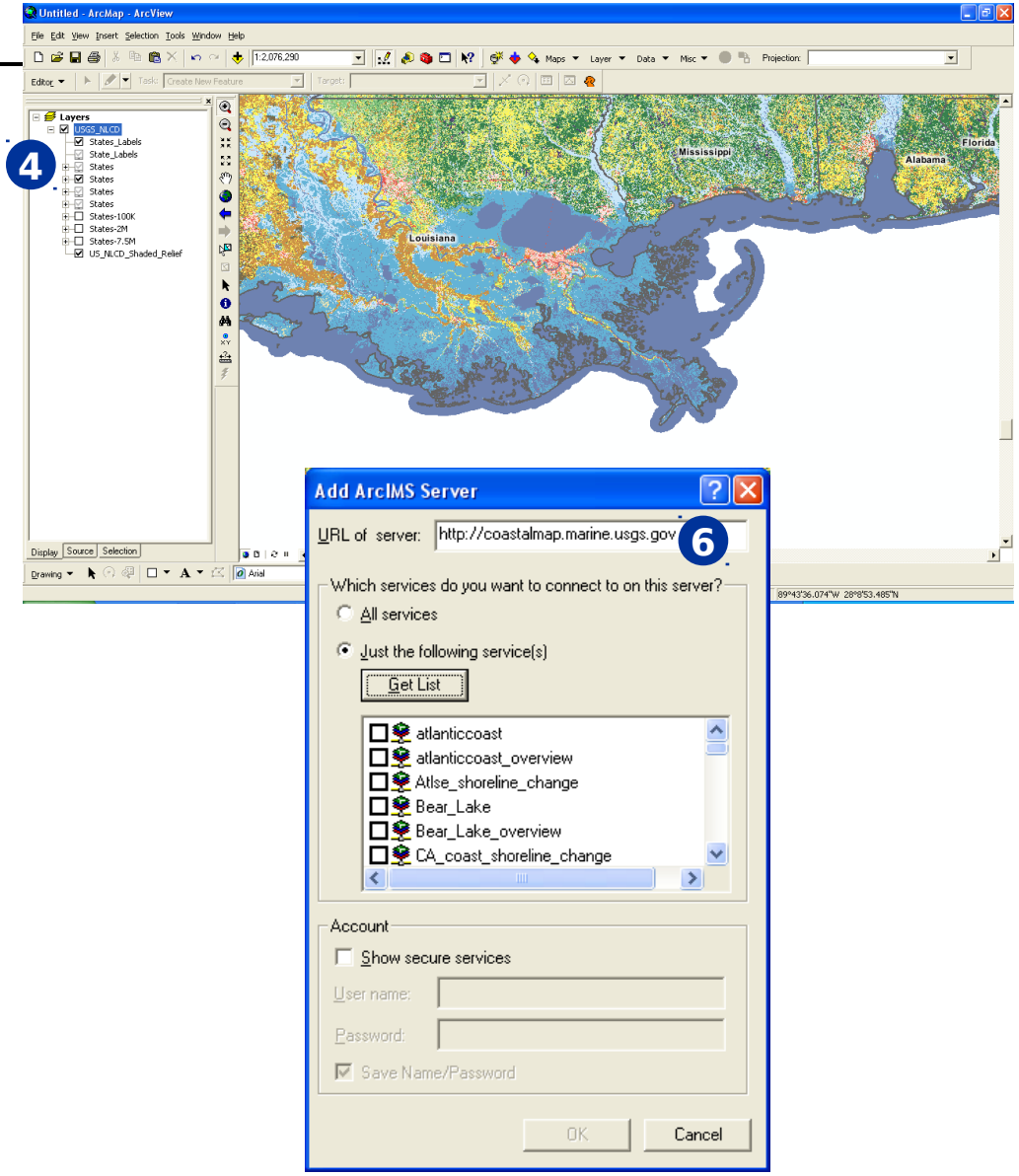
3. Zoom into southeastern Louisiana

4. To toggle the available layers, click the + sign to expand the group.

5. Data from multiple web services can be loaded into a single ArcMap session. If you know of an existing, public web mapping server, you can supply the connection credentials.

6. Click the '**Add Data**' button. Browse to **GIS Servers** and double-click on **Add ArcIMS Server**. Let's connect to the USGS coastal map server. Type **http://coastalmap.marine.usgs.gov** is the URL of server input box.

7. Click the **Get List** button to see the available public web mapping services. We will connect to all services, so select '**All Services**' and click OK.

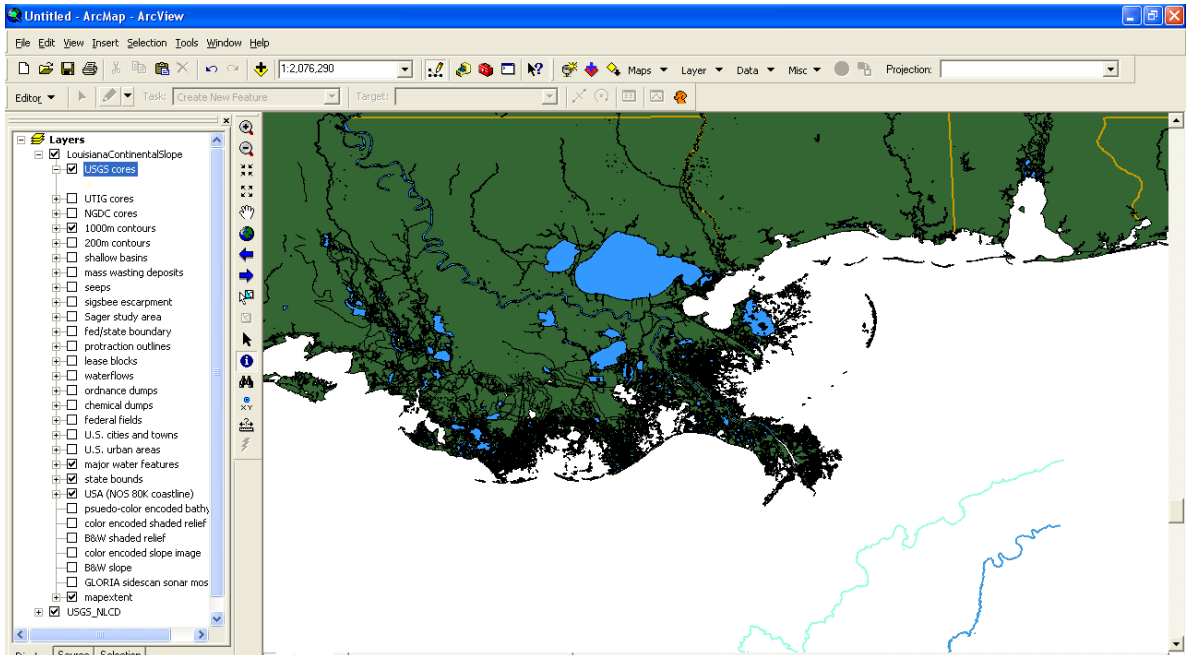


Exercise A: Finding Coastal Data

8. Double-click on **coastalmap.marine.usgs.gov**

9. The available list of map services will be displayed. Double-click on **LousianaContinentalSlope** to load the data into the ArcMap session.

10. A listing of other available public coastal mapping services can be found on **http://ecoastal.usace.army.mil/maps_data.asp**. This page contains connection details

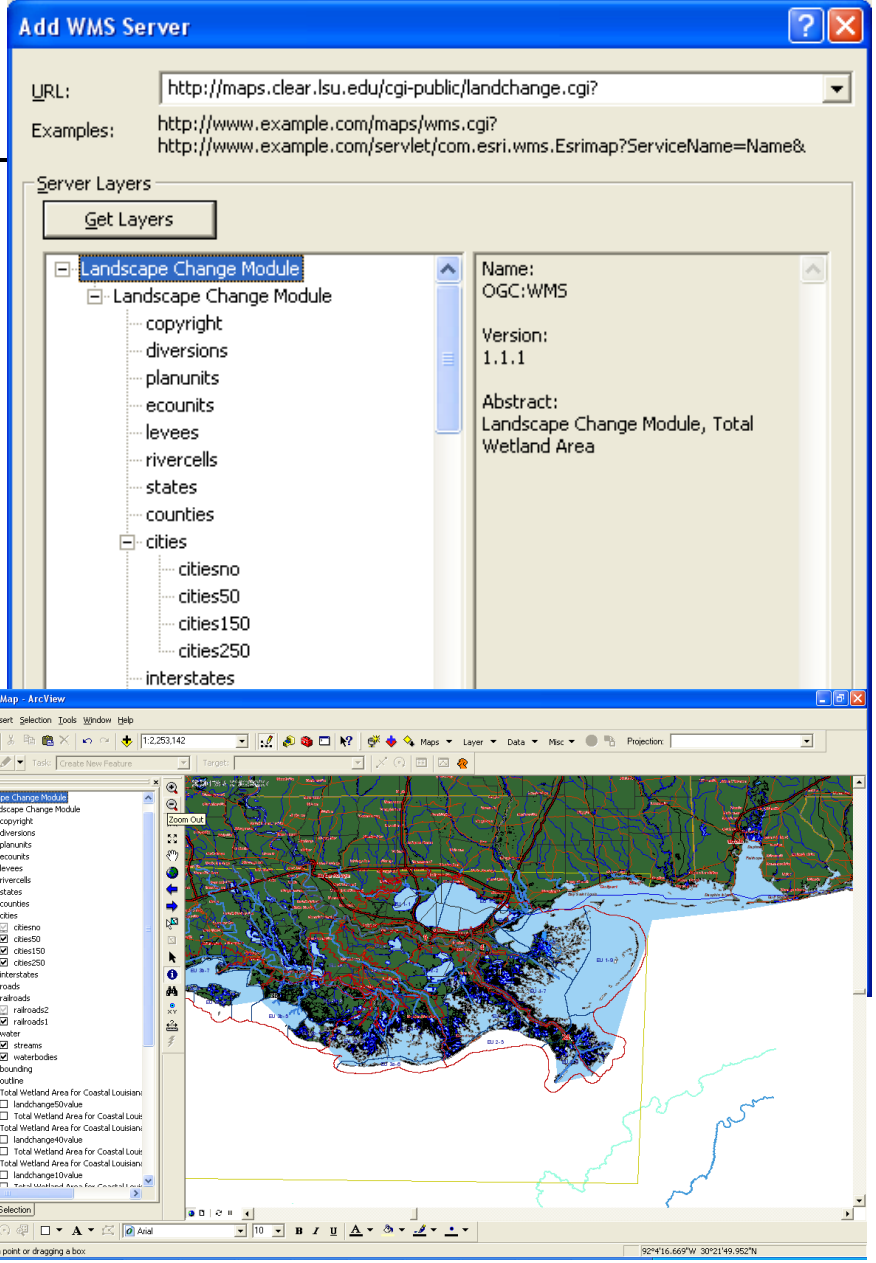


Exercise A: Finding Coastal Data

Our next task will be to connect to an open source Web Mapping Service (WMS). A number of agencies employ this type of service to easily share spatial data. In ArcGIS there are tools that allow us to connect to these shared datasets and use them in our analysis.

1. Click the '**Add Data**' button. Browse to **GIS Servers** and double-click on **Add WMS Server**. Let's connect to the Coastal Louisiana Ecosystem Assessment and Restoration (CLEAR) services. Type **http://maps.clear.lsu.edu/cgi-public/landchange.cgi?** is the URL input box. Click OK.

2. Double-click on the **Landscape Change Module on maps.clear.lsu.edu** service to load the data into the current session. Double-click on **Landscape Change Module**. Click **Add**. All of the data hosted by the service is loaded into the Table of Contents.



Exercise A: Finding Coastal Data

I added data to my data frame, but the layers do not line up. Why?

- In most cases the problem will be that the data that you are attempting to overlay may be in different projections. When working with spatial data, it is important to know the projection of your data. By establishing a baseline projection, this will ensure the data will overlay properly.
- Projection—A mathematical formula that transforms feature locations from the earth's curved surface to a map's flat surface. Projections can cause distortions in distance, area, shape, and direction; all projections have some distortion. Therefore, the projection type is often placed on the map to help readers determine the accuracy of the measurement information they get from the map.

Under the **Maps & Data** page of the **eCoastal website**, http://eCoastal.usace.army.mil, is a listing of coastal related map services that are available for viewing and downloading in either a web or ArcGIS desktop environment. You can use the skills learned in this lesson to access these datasets.

USACE Main
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Missions
History
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Related Programs
Want to Add Data to ArcMap?
To view instructions on how to download or connect to web services using ESRI's ArcMap, click HERE.
The connection details for each of the map services are listed to the right.
Enterprise GIS Data
A fundamental principle of an enterprise GIS, such as eCoastal, is to link to and leverage existing spatial datasets into our local projects. These links have been provided to assist users in locating existing coastal related datasets.
To have a link posted on this page, please place a request on the Contact Us page.
Maps & Data
The following list of map services are produced by USACE Districts hosting an eCoastal program with publicly accesible map services. This page also includes a list to a number of additional online coastal mapping services that are hosted by other agencies.
USACE eCoastal Program Map Services & Data
GIWW Coastal GIS Basemap
Server URL: http://gis.sam.usace.army.mil
Service Name: C000
Availability: Online
Host: CESAM, Spatial Data Branch
Open Map
In October 1999, the US Army Engineer District, Mobile (SAM), initiated the USACE Northern Gulf of Mexico Regional Sediment Management Demonstration Program. The goal of the demonstration program is to change the paradigm of project specific management to focusing on a regional approach in which the USACE as well as state and local agencies stop managing projects and begin "managing the sand." The product of the RSM demonstration program is a Regional Sediment Management Plan consisting of a calibrated regional sediment budget, a calibrated numerical regional prediction system, and a regional data management and Geographic Information System. This GIS also fullfills a requirement of the Florida Department of Environmental Protection by providing baseline information required for re-certification of Gulf Intracoastal Waterway.
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Exercise B: Using Layer Files to Display and Access Data

It takes time to analyze a feature class's attributes and symbolize its features so that people will readily understand the information within the data. After finalizing the symbolization and labeling of a layer, you can save it outside the map as a layer file. This allows a user to be able to load the data into ArcMap application and it have the same look and feel every time it is loaded.

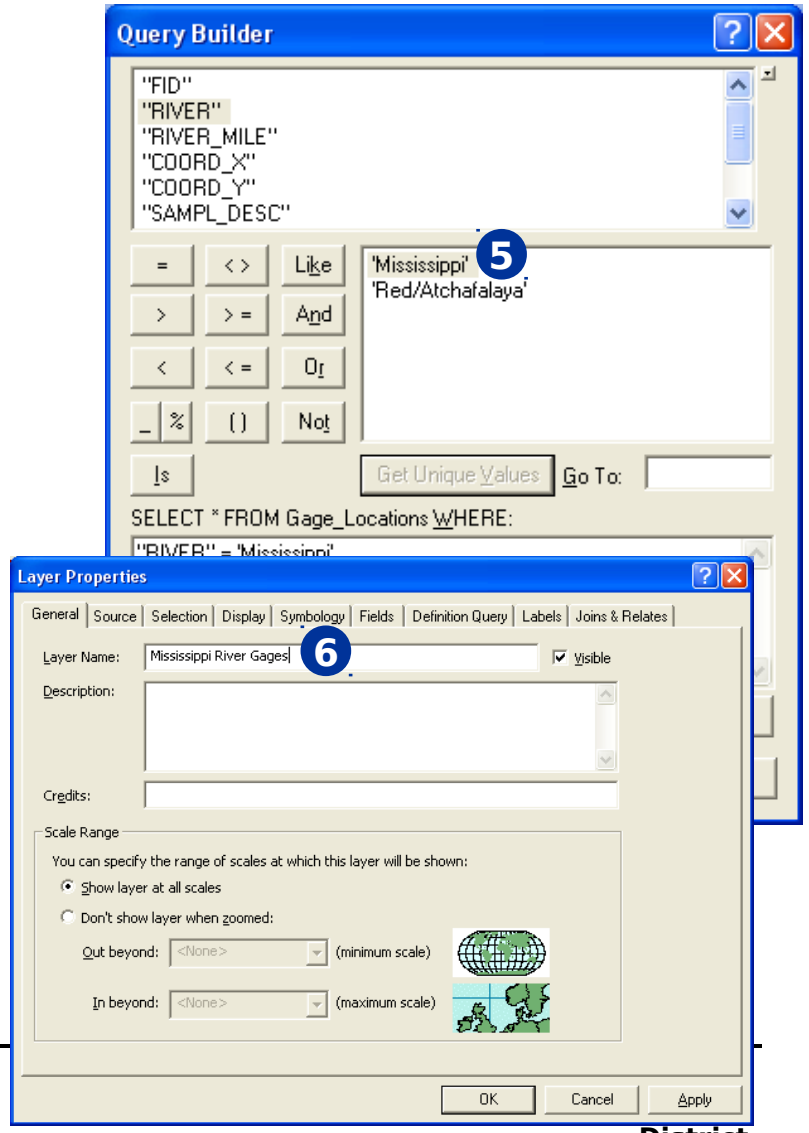
A GDB that is SDS compliant is unique in that several shapefiles can be loaded into one GDB Feature class. Building layer files allows a user the ability to extract particular sets of data out of a feature class. Layer files are, also, unique in that they can have metadata attached to them. This allows a user to have multiple surveys, for example, that are loaded into a single feature class, and each would have its own metadata file associated to its layer file.

When building a layer file from a Geodatabase, it is important to remember what user from which the layer files are being built. When logging into the eGIS GDB, use the appropriate user for the task. If edits need to be done on the GDB, log in as the editor, and build your layer file form this user. However, if you are simply viewing the data, log in as the viewer, and then built the layer file from the viewer.

Under the eCoastal data model, all data load into the eGIS GDB will have a layer file built for it. That layer file should have associated metadata and both should be stored in the appropriate project folder. All layer files should have the following properties built into them: a Definition Query, unique symbology, a common name, and scale dependent rendering set.

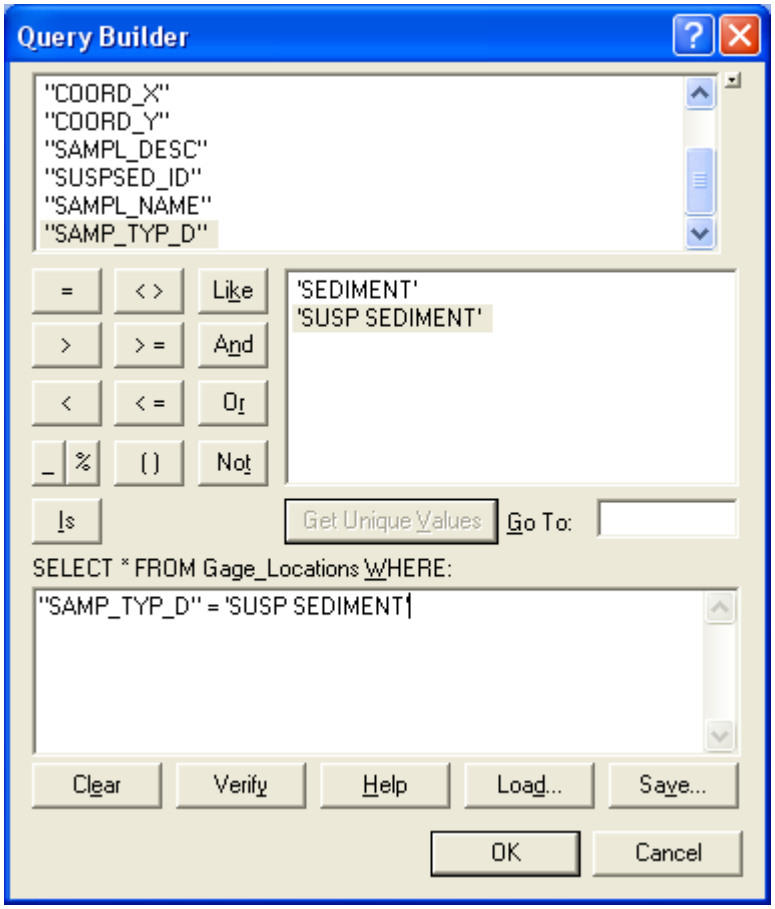
Exercise B: Using Layer Files to Display and Access Data

1. In ArcMap, add in the **Gage_Locations** feature class from the Training/Data directory from your local drive.
   - ❑ Right-click on the layer and select “Properties”
   - ❑ Click on the “**Definition Query**” tab. We will create a query to extract a portion of this layer, so it can be easily displayed in ArcMap.
2. Build the Query string for the layer.
   1. Click on the “Query Builder” button
   2. Double-click on “RIVER”. Notice it will appear at the bottom of your form.
   3. Click on the “=“ button.
   4. Click the “**Get Unique Values**” button.
   5. Scroll down to locate the “Mississippi”. Double-click on this record and click OK.
   6. On the “**General**” tab, rename the layer to “Mississippi River Gages”. Click OK on the Layer properties form.
   7. Notice that the channels layer is redrawn, but this time with only the Mississippi River Gages are in view.
   8. Right-click on the Mississippi River Gages in the Tables of Contents and select “Save as Layer File”.
      - ❑ Browse to the Training directory and save this layer file.



Exercise B: Using Layer Files to Display and Access Data

1. In the Table of Contents, right-click on the Mississippi River Gages layer and select "**Copy**".
2. Right-Click on the Data Frame name in the Table of Contents and select "**Paste Layer**".
3. Right-Click on this duplicate layer and view it's **Properties**.
   - ❑ On the "**General**" tab, rename this layer to "Suspended Sediment Sample Gages".
   - ❑ Click on the "**Definition Query**" tab, and **clear** the existing query by selecting and deleting the contents.
4. Create a new definition query to filter for only the Suspended Sediment Gages (SUSP SEDIMENT) features.
   - ❑ Click on the Query Builder button
   - ❑ Create a new SQL query based on SAMP_TYP_D.
   - ❑ Click OK twice.
   - ❑ Right-click on the new layer and save as a layer file.
5. Layer files can be used to filter large feature classes and provide a consistent symbology display. In these 2 examples, we created 2 different views of the same dataset. This technique can be used to assist in the leveraging of datasets across numerous projects, without having to recreate a copy of the spatial data.



Exercise C: Creating a Raster Index

1. Load in all data located in C:\Training\Data\Raster_Index. Turn off all of the raster images. We will use the index tool to create an index of these layers.

2. Click on the '**Build Raster Index**' tool from the Imagery Manager toolbar.

3. Ensure that the '**Raster Images Currently in the Table of Contents**' is selected.

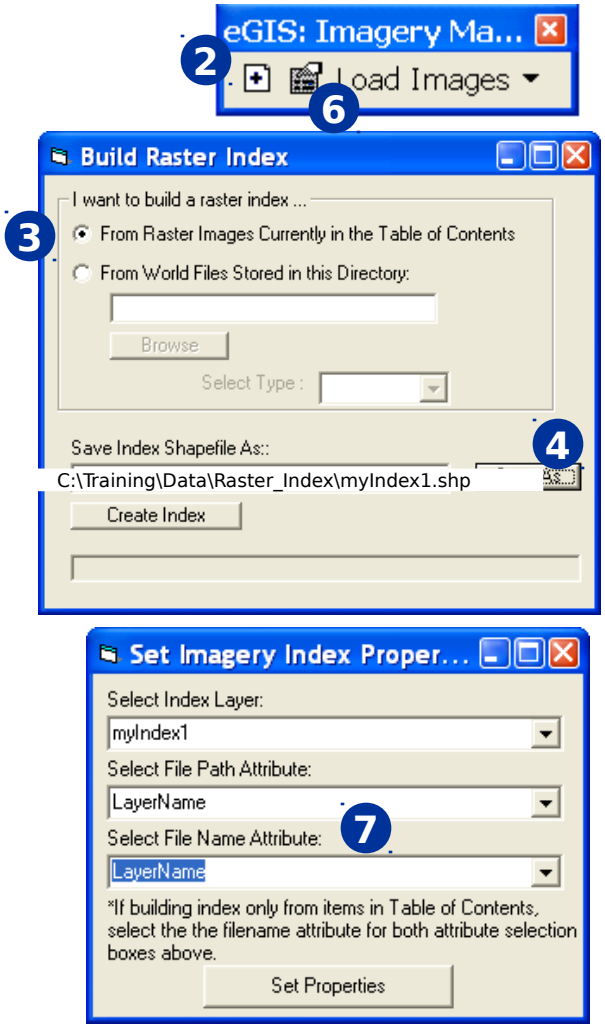
4. Click on the '**Save As**' button and name the new shapefile **C:\Training\Data\Raster_Index\myIndex1.shp**. Click Save.

5. Click on the **Create Index** button. This will create a point shapefile and load the layer automatically into the Table of Contents.

6. To turn on raster images using the index, first set the Index Properties. Click the **Property** button on the Imagery Manager toolbar.

7. Select **myIndex1** as the Index Layer and select **LayerName** for **both** the File Path and File Name. Click the **Set Properties** button.

8. Using ArcMap's selection tool, select a point or group of points in the raster index.



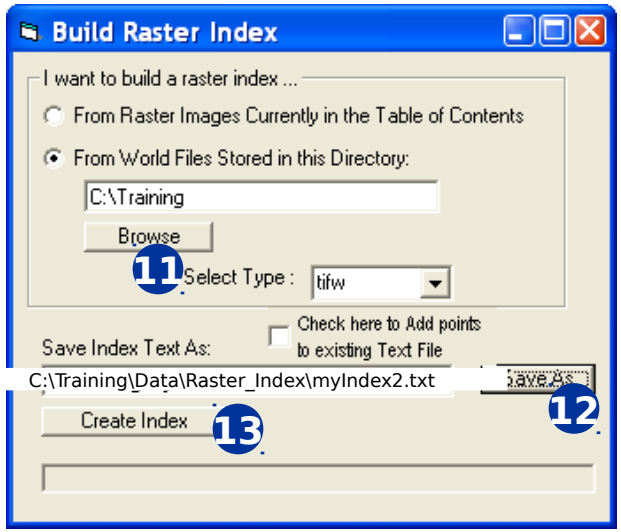
Exercise C: Creating a Raster Index

9. Click on the **Load Images** menu and select '**Turn Layers on by TOC Index**'. This will turn on and move the selected raster images to the top of the table of contents.

10. In some cases you may have far too many images to first load them in the table of contents. This tool also allows you to directly build an index from world files contained with your raster image.

    ☐ **Remove** all layers in the Table of Contents.

    ☐ To build an index from world files, click the '**Build Raster Index**' button.



11. Select the '**From World Files Stored in this Directory:'** option.

    ☐ Click the **Browse** button and browse (or type) to the **C:\Training\Data\Raster_Index directory**. Click OK.

    ☐Select the type of world file used. For this sample, select '**tfw**'.

12. Click the '**Save As**' button and save the index as **myIndex2.txt** in the C:\Training\Data\Raster_Index directory.

13. Click the '**Create Index**' button. Once this button is selected, this tool mines the world files stored in the directory you specified. The coordinates are extracted and an index file is generated.

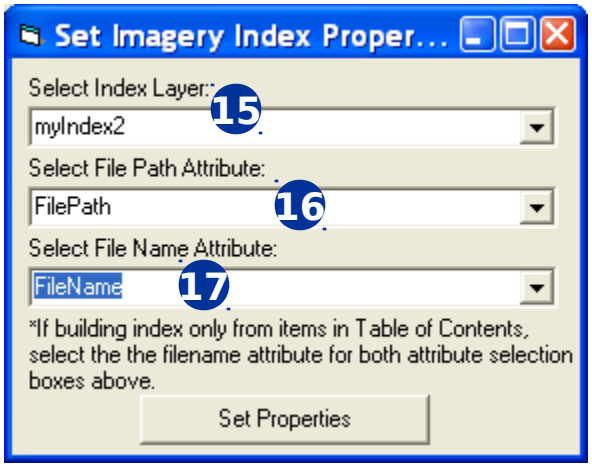
Exercise C: Creating a Raster Index

14. To load images indexed by this layer, click the Index Properties tool.

15. Select **myIndex2** as the Index Layer.

16. Select **FilePath** as the File Path Attribute.

17. Select **FileName** as the File Name Attribute.



18. Click the **Set Properties** button.

19. Using ArcMap's selection tool, select a point or group of points in the raster index.

20. From the Load Images menu of the Imagery Manager toolbar, select **Load by File Path/File Name**. Images will be pulled from the designated directory and loaded into the table of contents.